CLAIMS

1. A fuel cell system, comprising:

a laminate (170) of unit cells (17a, 17b), each unit cell (17a, 17b) comprising a coolant passage (11a, 11b);

a coolant supply manifold (12) passing through the laminate (170), which distributes coolant from a coolant recirculation device (100) provided outside the laminate (170) to the coolant passages (11a, 11b) of the unit cells (17a, 17b);

a coolant discharge manifold (13) passing through the laminate (170), which recovers coolant from the coolant passages (11a, 11b) of the unit cells (17a, 17b) to the coolant recirculation device (100);

a valve (3, 4) which shuts off circulation of the coolant between the laminate (170) and the coolant recirculation device (100); and

a bypass passage (14a, 14b) connecting the coolant supply manifold (12) and the coolant discharge manifold (13), wherein the bypass passage (14a, 14b) has a larger cross-section than a cross-section of the coolant passages (11a, 11b).

2. The fuel cell system as defined in Claim 1, wherein the valve (3, 4) comprises a valve (3) which shuts off the connection between the coolant supply manifold (12) and the coolant recirculation device (100).

3. The fuel cell system as defined in Claim 1, wherein the valve (3, 4) comprises

a valve (4) which shuts off the connection between the coolant discharge manifold (13) and the coolant recirculation device (100).

4. The fuel cell system as defined in any one of Claim 1 through Claim 3, wherein the unit cells (17a, 17b) comprise a first unit cell (17b) situated in a center portion in the lamination direction of the laminate (170), and a second unit cell (17a) situated in another portion including ends of the laminate (170), and a circulation resistance of the coolant passage (11b) of the first unit cell (17b) is set to be less than a circulation resistance of the cooling passage (11a) of the second unit cell (17a).

5. The fuel cell system as defined in Claim 4, wherein the laminate (170) has a vertical cross-section in a direction of lamination in which the center portion of the laminate (170) is situated lower than both ends of the laminate (170).

6. The fuel cell system as defined in Claim 4, wherein the fuel cell system further comprises a pair of grip members (2) which grip the laminate (170), and the bypass passage (14a, 14b) comprises a bypass passage (14a) formed inside one of the grip members (2), and a bypass passage (14b) formed inside the other of the grip members (2).

7. The fuel cell system as defined in Claim 6, wherein the fuel cell system further comprises a pump (5a, 5b) which recirculates the coolant in a coolant recirculation passage including the coolant supply manifold (12), the coolant

discharge manifold (13), and the bypass passage (14a, 14b).

8. The fuel cell system as defined in Claim 7, wherein the fuel cell system further comprises a temperature sensor (21a, 21b) which detects a temperature of the laminate (170), and a programmable controller (7) programmed to control a discharge flow rate of the pump (5, 5a, 5b) based on the temperature of the laminate (170).

9. The fuel cell system as defined in Claim 8, wherein the controller (7) is further programmed to open and close the valve (3, 4) based on the temperature of the laminate (170).

10. The fuel cell system as defined in Claim 9, wherein the fuel cell system further comprises a temperature deviation detection sensor (21a, 21b, 210) which detects a temperature deviation inside the laminate (170), and the controller (7) is further programmed to vary an opening of the valve (3, 4) based on the temperature deviation inside the laminate (170).

11. The fuel cell system as defined in Claim 10, wherein the temperature deviation detection sensor (21a, 21b, 210) comprises a sensor (21b) which detects a temperature of the first unit cell (17b), and a sensor (21a) which detects a temperature of the second unit cell (17a).

12. The fuel cell system as defined in Claim 7, wherein the fuel cell system

further comprises a voltage sensor (24a) which detects a power generation voltage of the laminate (170), and a programmable controller (7) which controls a discharge flow rate of the pump (5, 5a, 5b) based on the power generation voltage of the laminate (170).